

ABSTRACT OF THE DISCLOSURE

A rotary position measuring system having a housing connected with a scanning unit having a light source that emits beams of light and a detector element.

- 5 A reflection scanning graduation structure arranged directly on the housing opposite the scanning unit. A graduated disk is connected with a rotatable shaft and has a radial transmission measuring graduation structure, wherein the graduated disk is arranged so it is rotatable around an axis of symmetry in the housing so that the measuring graduation structure is located between the scanning unit and the scanning graduation structure. The beams of light emitted by the light source first reach the measuring graduation structure where they are split into a first set of diffracted partial beams of different orders and the diffracted partial beams impinge on the scanning graduation structure. A second set of diffracted partial beams of different orders results and a back-reflection of the second set of diffracted partial beams in the direction toward the measuring graduation structure results, where the second set of diffracted partial beams interfere with one another and the detection of interfering partial beams takes place by the detector element.
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